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V2500-A1/A5/D5 PROPULSION SYSTEMS SERVICE BULLETIN

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This document transmits Revision 3 to Service Bulletin EV2500-72-0415 and Revision 3 to the Supplement

Document History

Service Bulletin Revision Status		Supplement Revision Status	
Initial Issue	Mar.29/02	Initial Issue	Mar.29/02
Revision 1	Aug.15/02	Revision 1	Aug.15/02
Revision 2	Oct.31/02	Revision 2	Oct.31/02

Bulletin Revision 3

Remove	Incorporate	Reason for change
	Page 1 and 2 of the Summary	To revise to new format and correct metric conversion dimensions.
Pages 1 to 13 of the Service Bulletin	Pages 1 to 14 of the Service Bulletin	To revise to new format and correct metric conversion dimensions.
	Pages 1 to 3 of Appendix 1	To revise to new format and correct metric conversion dimensions.

Supplement Revision 3

Remove	Incorporate	Reason for change
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V2500-ENG-72-0415
Transmittal - Page 1 of 3

CHECK THAT ALL PREVIOUS TRANSMITTALS HAVE BEEN INCORPORATED
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All pages

Page 1

To revise to new format and
correct metric conversion
dimensions.

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V2500-ENG-72-0415
Transmittal - Page 2

LIST OF EFFECTIVE PAGES

The effective pages to this Service Bulletin following incorporation of Revision 3 to the Bulletin and Revision 3 to the Supplement are as follows:

<u>Page</u>	<u>Revision Number</u>	<u>Revision Date</u>
Summary		
R 1	3	Aug.18/05
R 2	3	Aug.18/05
Bulletin		
R 1	3	Aug.18/05
R 2	3	Aug.18/05
R 3	3	Aug.18/05
R 4	3	Aug.18/05
R 5	3	Aug.18/05
R 6	3	Aug.18/05
R 7	3	Aug.18/05
R 8	3	Aug.18/05
R 9	3	Aug.18/05
R 10	3	Aug.18/05
R 11	3	Aug.18/05
R 12	3	Aug.18/05
R 13	3	Aug.18/05
R 14	3	Aug.18/05
Appendix 1		
R 1	3	Aug.18/05
R 2	3	Aug.18/05
R 3	3	Aug.18/05
Supplement		
R 1	3	Aug.18/05

ENGINE – PROVIDE NEW FRONT AND REAR NUMBER 4 BEARING DUCTS WITH OIL DRAIN HOLES

SUMMARY

R 1. PLANNING

R A. EFFECTIVITY

R Engine V2500-A1 Serial Numbers V0001 thru V0361

R Engine V2500-A5 Serial Numbers V10001 thru V11326, and V11328, V11330,
R V11332, V11334, V11336, and V11338

R Engine V2500-D5 Serial Numbers V20001 thru V20285

R B. CONCURRENT REQUIREMENTS

R There are no concurrent requirements.

R C. REASON/PROBLEM

R Problem: In the event of oil loss accumulated out of the number 4 bearing
R compartment, the oil could be ignited at engine high power condition and
R cause detrimental heat distress damage to HPT parts. Multiple engine
R tear-down inspections revealed that the front and rear cold buffer cavities
R were found with evidence of oil wetness/coking deposits.

R Evidence: Recent rig testing and oil system analysis showed that a
R sufficient amount of oil accumulated in cold buffer cavities can be blown
R out at high power condition. The current cold buffer cavities do not have
R any oil draining capability.

R Objective: The front and rear cold buffer cavities were redesigned to
R introduce drain holes located at the bottom dead center to introduce a
R proper draining capabilities and consequently prevent accumulation of oil.

R D. DESCRIPTION

R Replace Front and Rear Number 4 Bearing Ducts.

R E. COMPLIANCE

R Category 3 for Model A1

R Accomplish by July 2005.

R Category 4 for Models A5/D5

R Accomplish at the first visit of an engine or module to a maintenance base
R capable of compliance with the accomplishment instructions regardless of
R the planned maintenance action or the reason for engine removal.



R F. MANPOWER

R (1)In Service

R Not Applicable.

R (2)At Overhaul

R 1 Hour.

R G. Total Necessary Man-hours

R 1 Hour.

R 2. MATERIAL INFORMATION

R Parts Prices

R A. There is no new material cost to do this Service Bulletin when the part
R modification procedure is used.

R The estimated price of new material to do this Service Bulletin using new
R replacement parts is \$54,260.00.

R B. There is no kit provided to do this Service Bulletin.

ENGINE – PROVIDE NEW FRONT AND REAR NUMBER 4 BEARING DUCTS WITH OIL DRAIN HOLES**1. Planning Information****A. Effectivity****(1) Airbus A319**

Engine Models Applicable

V2522-A5, V2524-A5, V2527M-A5 Engine Serial Nos. V10001 thru V11326, V11328, V11330, V11332, V11334, V11336, V11338

(2) Airbus A320

Engine Models Applicable

V2500-A1 Engine Serial Nos. V0001 thru V0361

V2527-A5, V2527E-A5 Engine Serial Nos. V10001 thru V11326, V11328, V11330, V11332, V11334, V11336, V11338

(3) Airbus A321

Engine Models Applicable

V2530-A5, V2533-A5 Engine Serial Nos. V10001 thru V11326, V11328, V11330, V11332, V11334, V11336, V11338

(4) Boeing MD-90

Engine Models Applicable

V2525-D5, V2528-D5 Engine Serial Nos. V20001 thru V20285

B. Concurrent Requirements

There are no concurrent requirements.

C. Reason

- (1) **Problem:** In the event of oil loss accumulated out of the number 4 bearing compartment, the oil could be ignited at engine high power condition and cause detrimental heat distress damage to HPT parts. Multiple engine tear-down inspections revealed that the front and rear cold buffer cavities were found with evidence of oil wetness/coking deposits.

- (2) Evidence: Recent rig testing and oil system analysis showed that a sufficient amount of oil accumulated in cold buffer cavities can be blown out at high power condition. The current cold buffer cavities do not have any oil draining capability.
- (3) Objective: The front and rear cold buffer cavities were redesigned to introduce drain holes located at the bottom dead center to introduce a proper draining capabilities and consequently prevent accumulation of oil.
- (4) Substantiation: Changes were validated using Rig Testing and Oil System analysis.
- (5) Effects of Bulletin on:
 - Removal/Installation: Not affected
 - Disassembly/Assembly: Not affected
 - Cleaning: Not affected
 - Inspection/Check: Not affected
 - Repair: Not affected
 - Testing: Not affected
- (6) Supplemental Information
 - None.

D. Description

Replace Front and Rear Number 4 Bearing Ducts.

E. Compliance

Category 3 for Model A1

Accomplish by July 2005.

Category 4 for Models A5/D5

Accomplish at the first visit of an engine or module to a maintenance base capable of compliance with the accomplishment instructions regardless of the planned maintenance action or the reason for engine removal.

F. Approval Data

The part number changes and/or part modifications specified in the Accomplishment Instructions and Material Information sections of this Service Bulletin have been shown to comply with the applicable Federal Aviation Regulations and are FAA-APPROVED for the engine model(s) given.

G. Manpower

- R (1) In Service
- R Not Applicable.
- R (2) At Overhaul
- R 1 Hour.

H. Weight and Balance

- R (1) Weight Change
- R None.
- R (2) Moment Arm
- R No Effect.
- R (3) Datum
- R Engine Front Mount Centreline (Power Plant Station (PPS) 100).

I. Electrical Load Data

This Service Bulletin has no effect on the aircraft electrical load.

J. Software Accomplishment Summary

Not Applicable.

K. References

- R 1. IAE V2500 Service Bulletin V2500-ENG-70-0200 (Information - Engine - Diffuser and Combustion Group - Provide a New No. 4 Bearing Front Cooling Duct Assembly).
- 2. IAE V2500 Service Bulletin V2500-ENG-72-0097 (Engine - No. 4 Bearing Compartment - Provide a No. 4 Bearing Cooling Duct and Heatshield with Improved Sealing Features).

3. IAE V2500 Service Bulletin V2500-ENG-72-0190 (Engine - HP Turbine Rotor and Stator Assembly - Introduce a New Stage 1 HPT Air Seal and a New No. 4 Bearing Rear Cooling Duct).
4. V2500 Engine Illustrated Parts Catalogs (S-V2500-1IA, S-V2500-2IA, S-V2500-2IB, S-V2500-3IA, S-V2500-3IB, S-V2500-5IA, S-V2500-5IB, S-V2500-6IA, S-V2500-6IB, S-V2500-7IA, and S-V2500-7IB), Chapter/Section 72-42-35-01-010 and 72-43-30-01-010.
5. V2500 Engine Manual (E-V2500-1IA), Chapter/Section 72-42-30 and 72-43-20.
6. V2500 Engine Manual (E-V2500-3IA), Chapter/Section 72-42-30 and 72-43-20.
7. V2500 Standard Practices Manual (SPP-V2500-1I-A), 70-09-00, Marking of Parts.
8. Internal Reference Numbers - 01VA010, 01VA010-03, 01VA010-04, 01VA010-05, 01VA010-06.
9. ATA Locator - 72-00-00.

L. Other Publications Affected

1. V2500 Engine Illustrated Parts Catalogs (S-V2500-1IA, S-V2500-2IA, S-V2500-2IB, S-V2500-3IA, S-V2500-3IB, S-V2500-5IA, S-V2500-5IB,, S-V2500-6IA, S-V2500-6IB, S-V2500-7IA, and S-V2500-7IB), Chapter/Section 72-42-35-01-010 and 72-43-30-01-010 to add the new parts.
2. V2500 Engine Manuals (E-V2500-1IA and E-V2500-3IA), Chapter/Section 72-42-35 and 72-43-30 Cleaning, Inspection and Repair, to add the new part.

M. Interchangeability of Parts

R Old and new parts are directly interchangeable.

N. Information in the Appendix

Alternate Accomplishment Instructions (No)

Progression Charts (Yes)

Added Data (Yes)

Revision to Table of Limits (No)

Inspection Procedures (No)

2. Material Information

A. Industry Support Program

Not Applicable.

B. The material data that follows is for each engine.

R 72-42-35

R For V2500-A1, V2522-A5, V2524-A5, V2527-A5, V2527E-A5, V2527M-A5, V2530-A5,
R V2533-A5, V2525-D5, V2528-D5 Engines:

R	FIG	NEW	QTY	PART TITLE	MAT	OLD	INSTR
R	ITEM	PART				PART	DISP
R	NO.	NO.				NO.	
R	01-010	2A3810-01	1	.Duct Assy, Cooling Air, No. 4 Brg. Front	-	2A2257-01	(1)(B) (N)(I)

R 72-43-30

R	FIG	NEW	QTY	PART TITLE	MAT	OLD	INSTR
R	ITEM	PART				PART	DISP
R	NO.	NO.				NO.	
R	01-010	2A3808-01	1	.Duct Assy, Cooling Air, No. 4 Brg. Rear	-	2A3078-01	(1)(B) (N)(I)

R The material data that follows is for each V2500-A1 Engine prior to Service
R Bulletin 70-0200

R 72-42-35

R	FIG	NEW	QTY	PART TITLE	MAT	OLD	INSTR
R	ITEM	PART				PART	DISP
R	NO.	NO.				NO.	
R	01-010	2A0892-001	1	.Duct Assy, Cooling Air, No. 4 Brg. Front	-	2A0892-01	(1)(M) (N)(I)

R The material data that follows is for each V2500-A1 Engine prior to Service
R Bulletin 70-0097

R 72-43-30

R	FIG	NEW	QTY	PART TITLE	MAT	OLD	INSTR
R	ITEM	PART				PART	DISP
R	NO.	NO.				NO.	
R	01-010	2A0891-001	1	.Duct Assy, Cooling Air, No. 4 Brg. Rear	-	2A0891-01	(1)(M) (N)(I)

The material data that follows is for each V2500-A1, V2522-A5, V2524-A5, V2527-A5, V2527E-A5, V2527M-A5, V2530-A5, V2533-A5, V2525-D5, V2528-D5 Engine prior to Service Bulletin 72-0190

72-43-30

R	FIG	NEW	QTY	PART TITLE	MAT	OLD	INSTR
R	ITEM	PART				PART	DISP
R	NO.	NO.				NO.	
R	01-010	2A1205-001	1	.Duct Assy, Cooling Air, No. 4 Brg. Rear	-	2A1205-01	(1)(M) (N)(I)

C. Instructions/Disposition Code Statements:

Parts Modification Conditions
(1) The new part can be obtained by modification of the old part as specified in the Accomplishment Instructions.

Spare Parts Availability
(B) The new part will be available approximately June 2002.
(M) It is possible to get the new part only by modification.
(N) The old part is not available.

Cleaning, Inspection and Repair Information
(I) The cleaning, inspection and repair requirements are the same for the old and new part. The applicable engine manuals will be revised.

D. Tooling - Price and Availability

Special tools are not required to accomplish this Service Bulletin.

E. Reidentified Parts

R	New PN	Reidentified Parts Data Keyword	Old PN
R	2A3810-01	Duct Assy, Cooling Air, No. 4 Brg. Front	2A2257-01
R	2A0892-001	Duct Assy, Cooling Air, No. 4 Brg. Front	2A0892-01
R	2A3808-01	Duct Assy, Cooling Air, No. 4 Brg. Rear	2A3078-01

V2500-ENG-72-0415

Mar 29/02
R Aug.18/05

Page 6

R		Reidentified Parts Data	
R	New PN	Keyword	Old PN
R	2A0891-001	Duct Assy, Cooling Air,	2A0891-01
R		No. 4 Brg. Rear	
R	2A1205-001	Duct Assy, Cooling Air,	2A1205-01
R		No. 4 Brg. Rear	

F. Other Material Information Data

Not Applicable.

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3. Accomplishment Instructions

(1) Obtain a new Number 4 Bearing Front Duct and Number 4 Bearing Rear Duct or modify as follows:

(a) Modify the Number 4 Bearing Front Duct, PN 2A2257-01 or 2A0892-01 as follows:

(i) Disassemble the Number 4 Bearing Front Duct. See reference 5 or 6 Chapter/Section 72-42-30.

(ii) Produce a 0.115 - 0.135 in. (2.921 - 3.429 mm) diameter hole bottom dead center in the Number 4 Bearing Front Duct. See Figure 3.

(iii) Inspect per finished dimensions on Figure 3.

(iv) Identify the modified Front Duct Assembly per the Reidentified Parts Section See Reference 7 Chapter/Section 70-09-00 Marking of Parts.

(b) Modify the Number 4 Bearing Rear Duct, PN 2A3078-01, 2A0891-01, or 2A1205-01 as follows:

(i) Disassemble the Number 4 Bearing Rear Duct See reference 5 or 6 Chapter/Section 72-43-20.

(ii) Produce a 0.115 - 0.135 in. (2.921 - 3.429 mm) diameter hole bottom dead center in the Number 4 Bearing Front Duct. See Figure 4.

(iii) Inspect per finished dimensions on Figure 4.

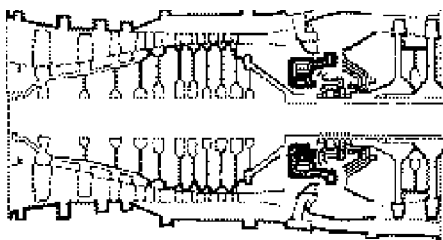
(iv) Identify the modified Rear Duct Assembly per the Reidentified Parts Section. See Reference 7 Chapter/Section 70-09-00 Marking of Parts.

(2) Assembly Instructions.

(a) Assemble the engine using a new or modified Number 4 Bearing Front Duct Assembly PN 2A3810-01 or 2A0892-001 and a Number 4 Bearing Rear Duct Assembly PN 2A3808-01, 2A0891-001, or 2A1205-001. See Reference 5 or 6 Chapter/Section 72-42-30 and 72-43-20.

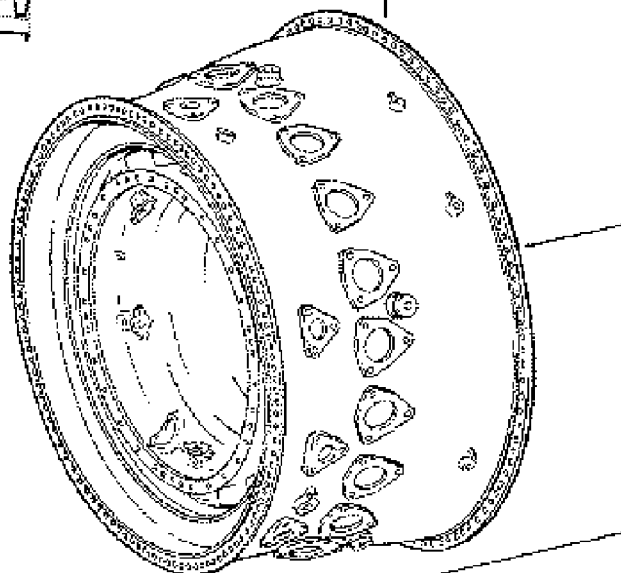
(3) Recording Instructions

(a) A record of accomplishment is required.



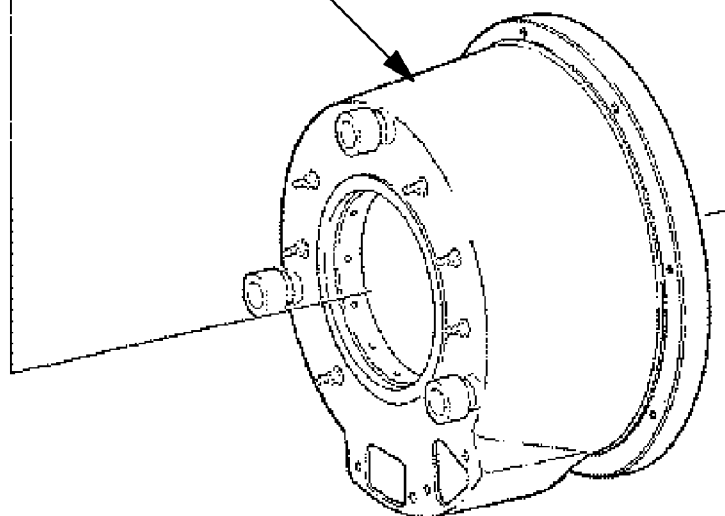
MODULE 40

SEE 72-42-11 FIG 01



REPLACE DUCT 2A2257-01
OR 2A0892-01 WITH DUCT
2A3810-01 OR 2A0892-001
RESPECTIVELY

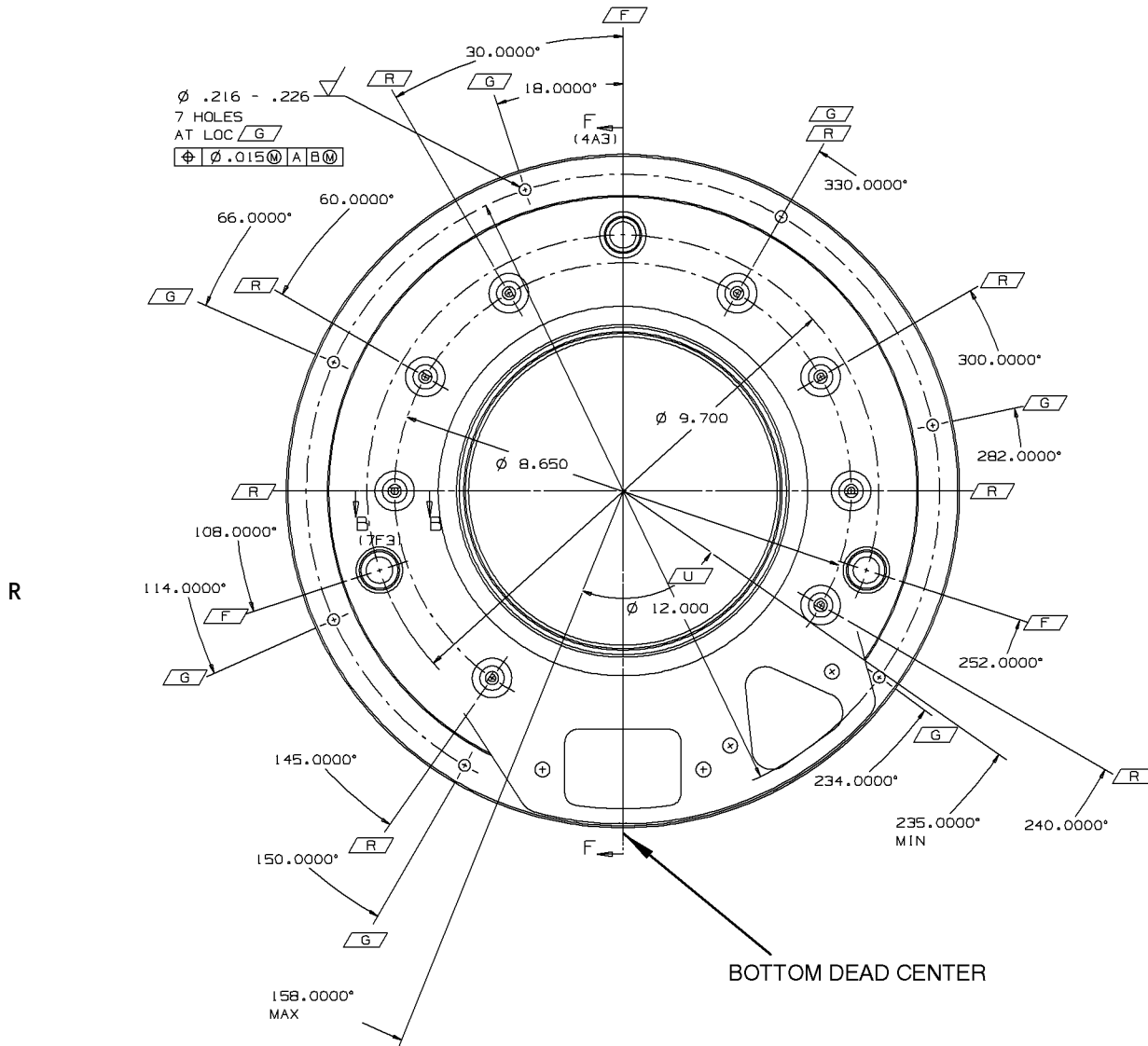
R



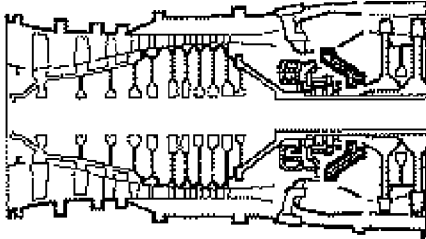
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R
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Duct Assembly, Cooling Air, No. 4 Bearing Front
Figure 1 (Sheet 1)



Duct Assembly, Cooling Air, No. 4 Bearing Front
Figure 1 (Sheet 2)

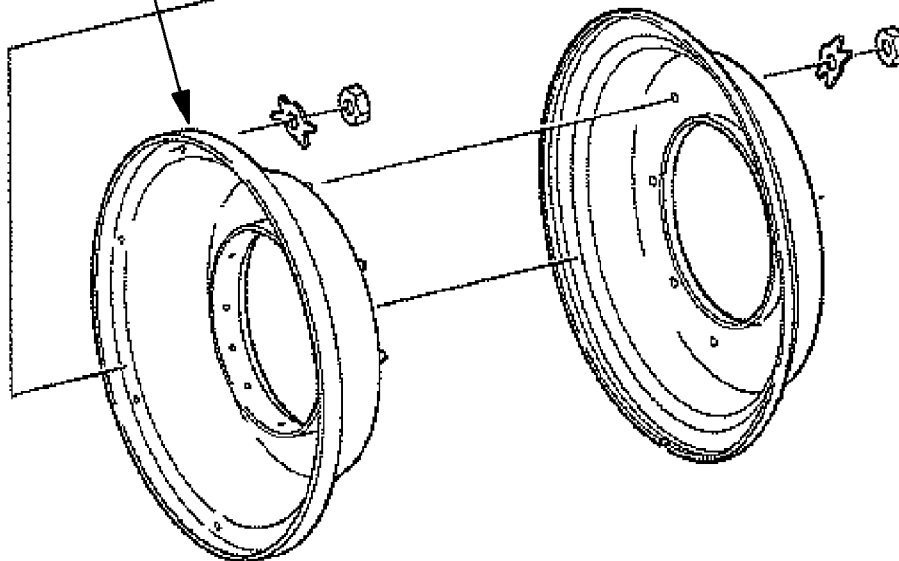
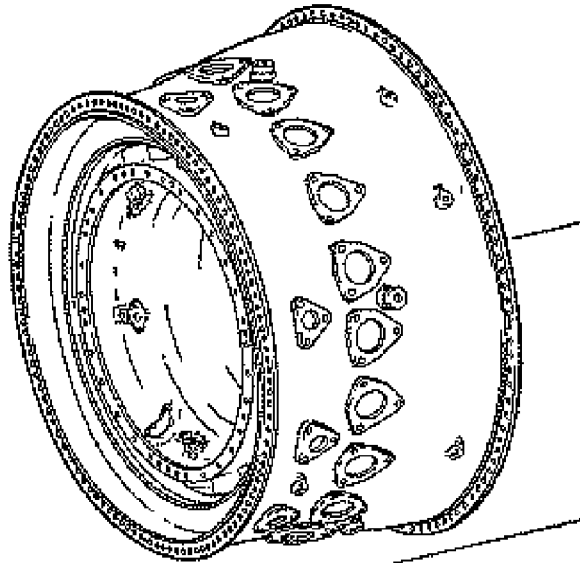


MODULE 40

SEE 72-42-11 FIG 01

REPLACE DUCT 2A3078-01,
2A0891-01, OR 2A1205-01
WITH DUCT 2A3808-01,
2A0891-001, OR 2A1205-001
RESPECTIVELY

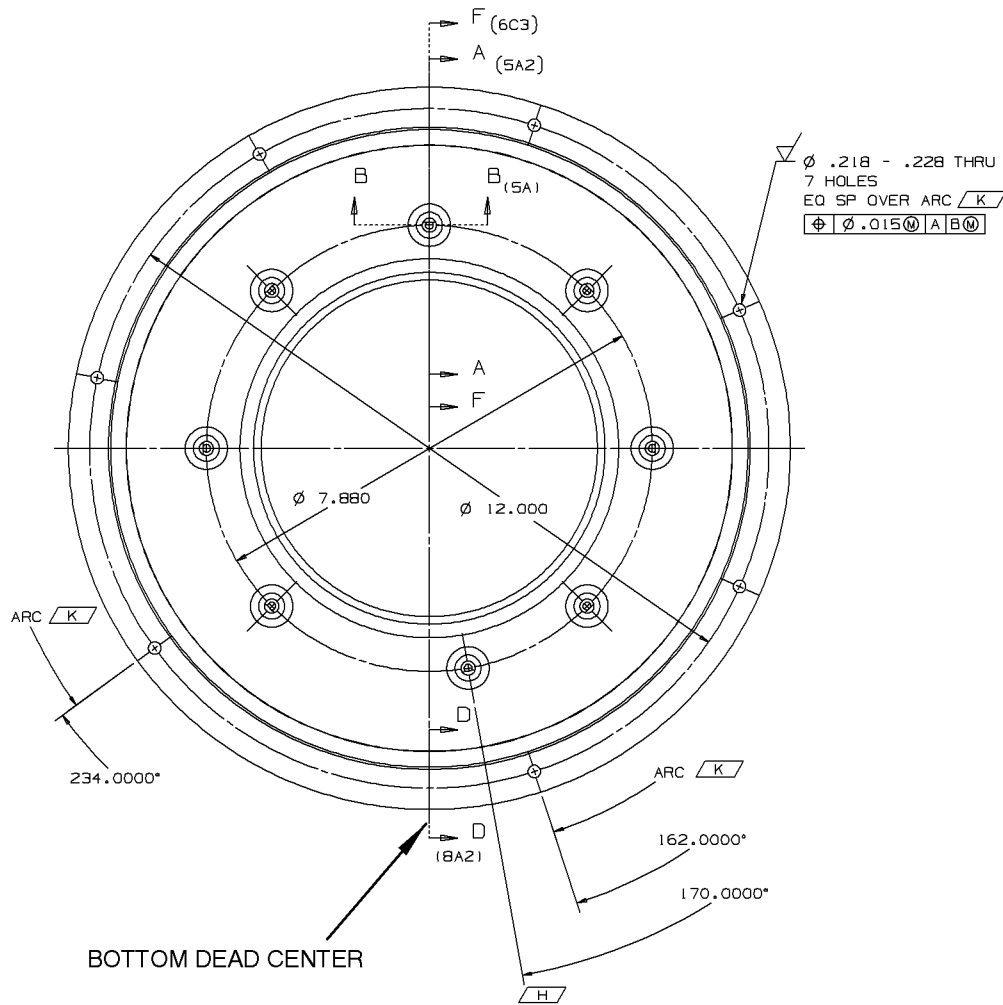
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Duct Assembly, Cooling Air, No. 4 Bearing Rear
Figure 2 (Sheet 1)

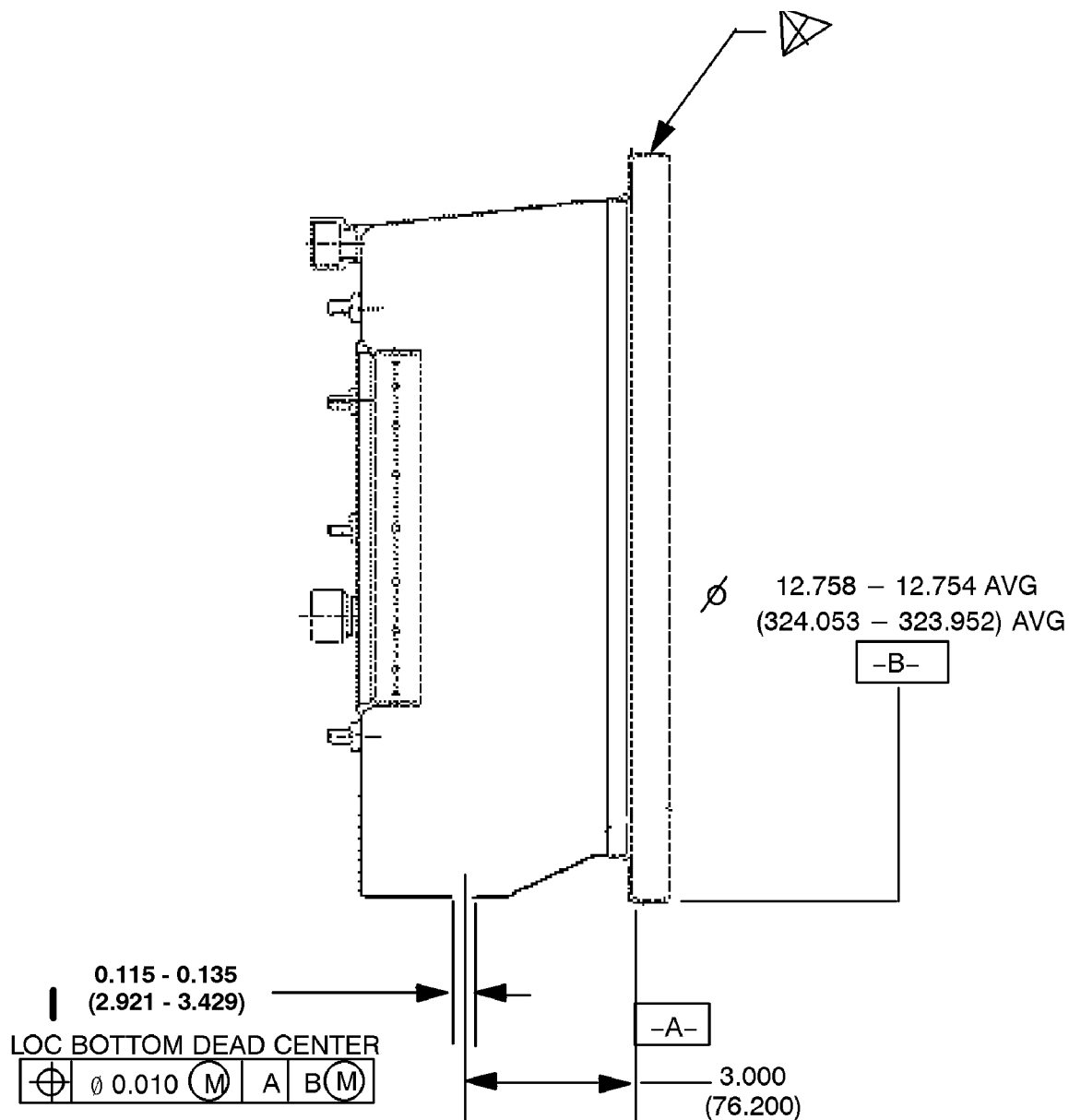


Duct Assembly, Cooling Air, No. 4 Bearing Rear
Figure 2 (Sheet 2)

V2500-ENG-72-0415

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Front Duct Assembly, No. 4 Bearing Cooling Air
Figure 3

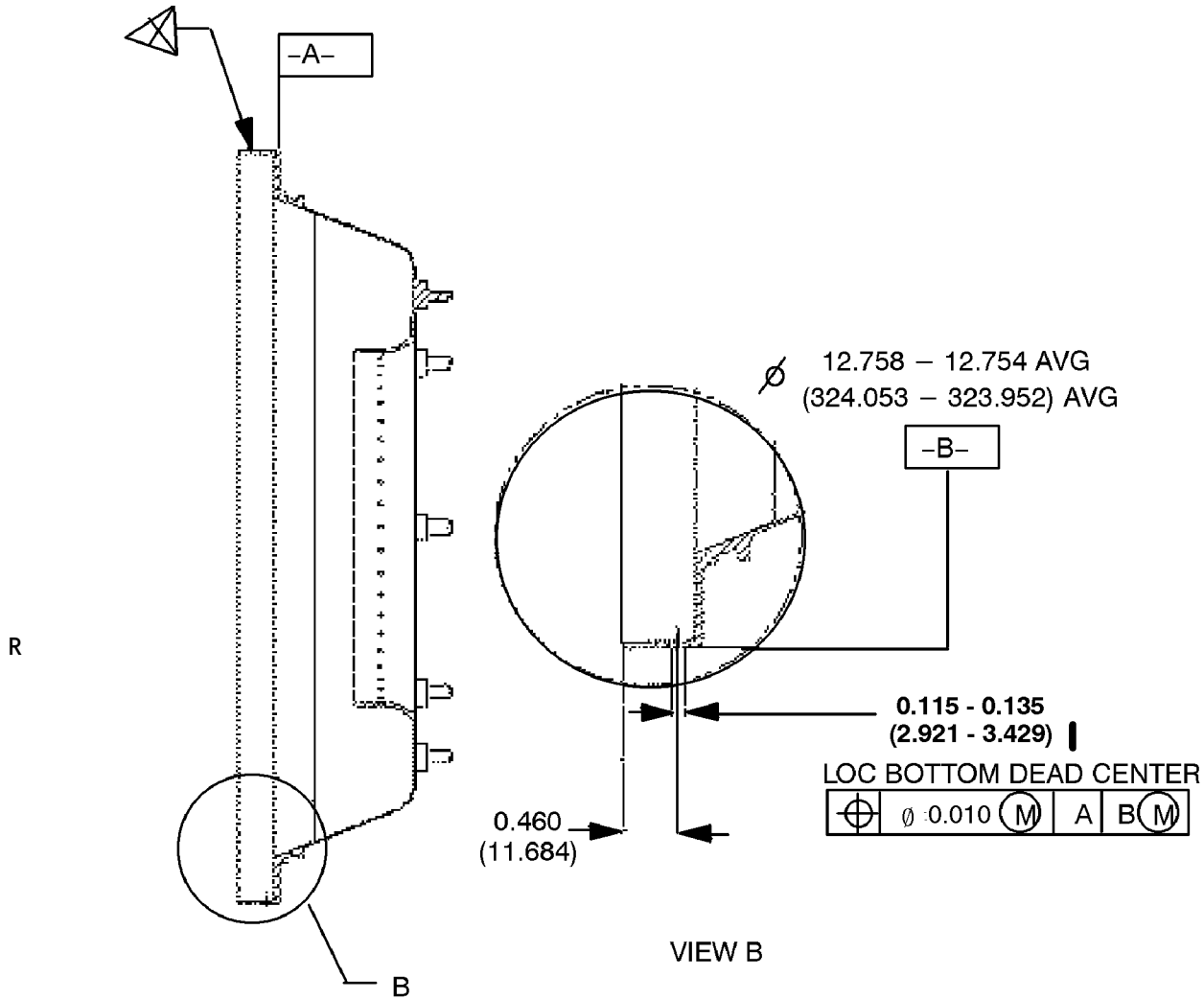
Mar 29/02
R Aug. 18/05

V2500-ENG-72-0415

Page 13

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R

Rear Duct Assembly, No. 4 Bearing Cooling Air
Figure 4

Mar 29/02
R Aug.18/05

V2500-ENG-72-0415

Page 14

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APPENDIX 1Parts Progression To Show the Changed Part in Relation to Other Parts

R Number values shown in parentheses adjacent to U.S. values are Systeme
Internationale equivalents.

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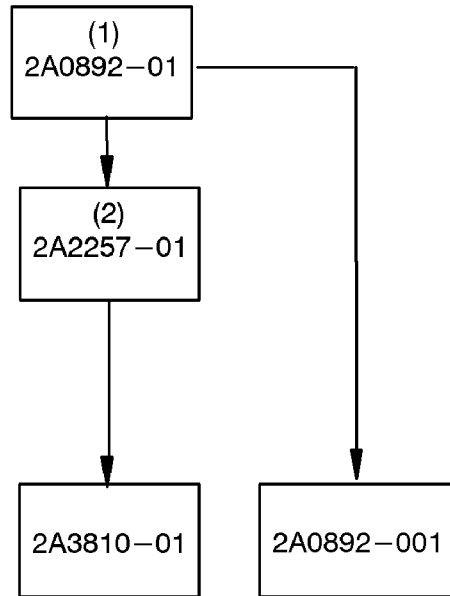
MODIFICATIONS

PART NUMBER CHANGE

BASE LINE

V2500-ENG-70-0200
INFORMATION – ENGINE –
DIFFUSER AND
COMBUSTION GROUP –
PROVIDE NEW NO. 4
BEARING FRONT COOLING
DUCT ASSEMBLY

V2500-ENG-72-0415
ENGINE – PROVIDE NEW
FRONT AND REAR NUMBER
4 BEARING DUCTS WITH OIL
DRAIN HOLES



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(1) Base Line for A1 Only

(2) Base Line for A5 / D5

pw0b510703

Family Tree – No. 4 Bearing Front Cooling Ducts
Chart 1

V2500-ENG-72-0415

Appendix 1 – Page 2

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Mar 29/02
R Aug.18/05

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MODIFICATIONS

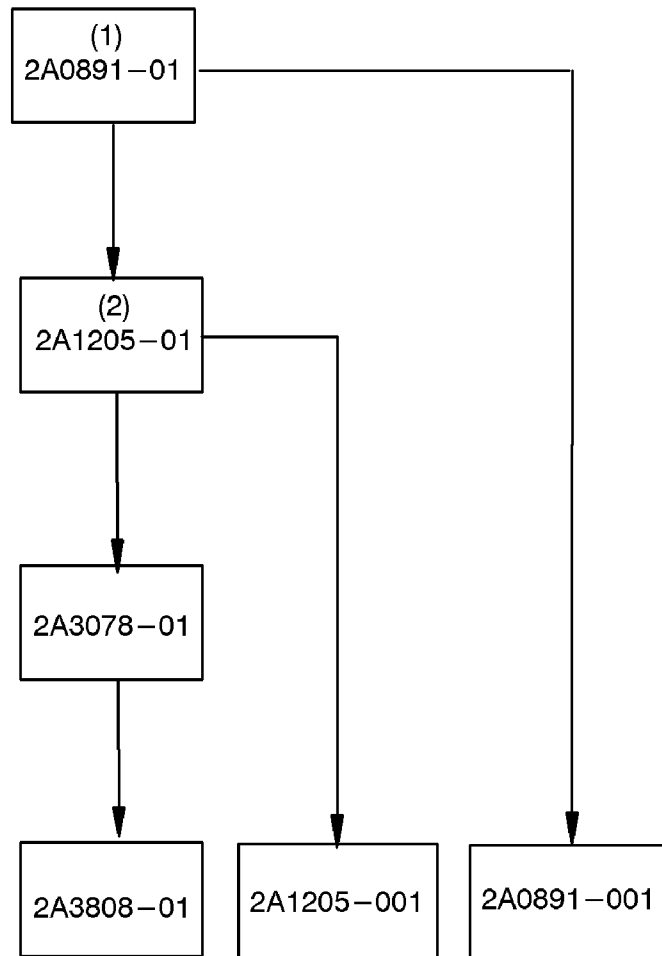
PART NUMBER CHANGE

BASE LINE

V2500-ENG-72-0097
ENGINE – NO.4 BEARING
COMPARTMENT – PROVIDE
A NO. 4 BEARING COOLING
DUCT AND HEATSHIELD
WITH IMPROVED SEALING
FEATURES

V2500-ENG-72-0190
ENGINE – HP TURBINE
ROTOR AND STATOR
ASSEMBLY – INTRODUCE A
NEW STAGE 1 HPT AIR SEAL
AND A NEW NO. 4 BEARING
REAR COOLING DUCT
ASSEMBLY

V2500-ENG-72-0415
ENGINE – PROVIDE NEW
FRONT AND REAR NUMBER
4 BEARING DUCTS WITH OIL
DRAIN HOLES



(1) Base Line for A1 Only

(2) Base Line for A5 / D5

pw0b510704

Family Tree – No. 4 Bearing Rear Cooling Ducts
Chart 2

Mar 29/02

R Aug. 18/05

V2500-ENG-72-0415

Appendix 1 – Page 3

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ENGINE – PROVIDE NEW FRONT AND REAR NUMBER 4 BEARING DUCTS WITH OIL DRAIN HOLES

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R SUPPLEMENT – PRICES AND AVAILABILITY

R V2500 ALL

R 1. Modification Kit:

R A. There is no kit provided to do this Service Bulletin.

R 2. Material Cost

R NOTE: The prices shown are for estimating purposes only and as such are given
R in good faith, without commercial liability for advanced planning
R purposes only. Refer to IAE Spares and/or current Price Catalog for
R current prices.

R A. There is no new material cost to do this Service Bulletin when the part
R modification procedure is used.

R B. The estimated price of new material to do this Service Bulletin using new
R replacement parts is \$54,260.00.

R C. There is no kit provided to do this Service Bulletin.

R 3. New Production Parts:

R	New Production		Unit Price
R	Part No.	Description	US Dollars
R	2A3808-01	Duct Assy, Cooling Air,	32,220.00
R		No. 4 Brg. Front	
R	2A3810-01	Duct Assy, Cooling Air,	22,040.00
R		No. 4 Brg. Rear	